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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/658,424
Filing Date: September 08, 2000
Appellant(s): LIU ET AL.

Robin C. Clark, Reg. No. 40956
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 05/07/2008 appealing from the Office action mailed 01/09/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,052,379	Iverson et al.	4-2000
6,862,270	Ho	3-2005
6,839,321	Chiruvolu	1-2005

Changming et al., "Guaranteed Bandwidth Sharing in a Traffic Shaping System.", Application number 09/658424, (Sept., 08, 2000), pp 2.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iverson et al. (6052379) (hereinafter Iverson) and what is well known in the art.

Referencing claim 1, as closely interpreted by the Examiner, Iverson teaches a method for allocating bandwidth in a network appliance where the network appliance includes a plurality of guaranteed bandwidth buckets used to evaluate when to pass traffic through the network appliance, the method comprising:

providing a shared bandwidth bucket associated with each of the plurality of the guaranteed bandwidth buckets, (e.g. Abstract, Fig. 10 & col. 17, line 56 – col. 18, line 19);

allocating bandwidth to the shared bandwidth bucket based on the underutilization of bandwidth in any one guaranteed bandwidth bucket, (e.g. Abstract, Fig. 10 & col. 17, line 56 – col. 18, line 19);

determining whether bandwidth in one guaranteed bandwidth bucket is sufficient to allow traffic to pass immediately through the network appliance, (e.g. Abstract, Fig. 10 & col. 17, line 56 – col. 18, line 19); and

transferring bandwidth from the shared bandwidth bucket to one guaranteed bandwidth buckets when it is determined that bandwidth in one guaranteed bandwidth bucket is not sufficient to allow traffic to pass immediately through the network appliance, (e.g. Abstract, Fig. 10 & col. 17, line 56 – col. 18, line 19). Iverson does not specifically teach a plurality of guaranteed bandwidth buckets. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have more than one guaranteed bandwidth bucket since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.,* 193 USPQ 8.

Referencing claim 5, as closely interpreted by the Examiner, Iverson teaches each guaranteed bandwidth bucket is associated with a traffic shaping policy, (e.g. col. 17, line 56 – col. 18, line 19, *"leaky bucket"*).

Referencing claim 6, as closely interpreted by the Examiner, Iverson teaches a plurality of guaranteed bandwidth buckets are associated with a single traffic shaping policy, (e.g. col. 17, line 56 – col. 18, line 19, *"leaky bucket"*).

Claim 14 is rejected for similar reasons as stated above.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2, 3, 7 – 11, 13 and 15 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iverson as applied to claims 1 and 5 above, and in view of Ho (6862270).

As per claim 2, as closely interpreted by the Examiner, Iverson teaches a shared bandwidth bucket but does not specifically teach tokens in the bucket. Ho teaches tokens in a bucket, (e.g. col. 11, lines 30 – 44, *"token bucket"*). It would have been obvious to on of ordinary skill in the art at the time the invention was made to combine Ho with Iverson because tokens can be allocated as a set rate, example 1 token equaling 1 kilobyte, which could aid in classifying packets to a type of service or priority given, by the amount of tokens guaranteed to the packet.

As per claim 3, as closely interpreted by the Examiner, Iverson teaches a guaranteed bandwidth bucket but does not specifically teach tokens in the bucket. Ho teaches tokens in a bucket, (e.g. col. 11, lines 30 – 44, *"token bucket"*). It would have been obvious to on of ordinary skill in the art at the time the invention was made to combine Ho with Iverson because of similar reasons stated above.

As per claim 7, as closely interpreted by the Examiner, Iverson teaches a traffic shaping policy but does not specifically teach a policy based on IP address.
Ho teaches a policy screens based on IP address, (e.g. col. 12, lines 40 – 62, *"parameters such as... IP Source Address"*). It would have been obvious to one of ordinary skill in the art, at the

time the invention was made, to combine Ho with Iverson because it would be more beneficial in certain situations, for example where low-priority traffic in one LAN group flow is protected form high-priority traffic in a misbehaving (not conforming to specified flow spec) flow when both flows are forwarded through the same wan group/VC.

As per claim 8, as closely interpreted by the Examiner, Iverson teaches a traffic shaping policy but does not specifically teach a policy based on source IP address.
Ho teaches a policy based on source IP address, (e.g. col. 12, lines 40 – 62, *"parameters such as... IP Source Address"*). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine Ho with Iverson because of similar reasons stated above.

As per claim 9, as closely interpreted by the Examiner, Iverson teaches a traffic shaping policy but does not specifically teach a policy based on destination IP address.
Ho teaches a policy based on destination IP address, (e.g. col. 12, lines 40 – 62, *"parameters such as... IP Destination Address"*). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine Ho with Iverson because of similar reasons stated above.

As per claim 10, as closely interpreted by the Examiner, Iverson teaches a traffic shaping policy but does not specifically teach a policy based on protocol type.

Ho teaches a policy based on protocol type, (e.g. col. 12, lines 40 – 62, *"parameters such as... IP protocol"*). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine Ho with Iverson because of similar reasons stated above. Furthermore, to would be more efficient for a system that processes specific data protocols to filter the data based on protocol type before the data reaches the processor.

As per claim 11, as closely interpreted by the Examiner, Iverson teaches a traffic shaping policy but does not specifically teach a policy based on UDP/TCP port number. Ho teaches a policy based on UDP /TCP port number, (e.g. col. 12, lines 40 – 62, *"parameters such as... TCP/UDP Destination Port Start"*). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine Ho with Iverson because it would be more efficient for a system to utilize a widely use protocol that most system use than have different protocols that a foreign network is unfamiliar with and will not be able to understand the packet's format.

As per claim 15, as closely interpreted by the Examiner, Iverson in combination with Ho teach all that is similar above in claim 1 as applied to claim 15, Ho further teaches a scheduler operable to

evaluate a packet to determine if a traffic shaping policy should be applied to a given packet, (e.g. col. 12, lines 15 – 40, *"QME, FCE, FSE"*),

evaluate a guaranteed bandwidth bucket associated with an identified traffic shaping policy, (e.g. col. 12, lines 15 – 40, *"QME, FCE, FSE"*), and Iverson teaches determine when the guaranteed bandwidth bucket associated with an identified traffic shaping policy has insufficient capacity to

support a transfer of the packet through the network, (e.g. Abstract, Fig. 10 & col. 17, line 56 – col. 18, line 19), and

borrow bandwidth from the shared bandwidth bucket by a respective guaranteed bandwidth bucket to allow traffic to pass immediately through the network appliance, (e.g. Abstract, Fig. 10 & col. 17, line 56 – col. 18, line 19). It would have been obvious to on of ordinary skill in the art at the time the invention was made to combine Ho with Iverson because of similar reasons stated above.

As per claim 16, as closely interpreted by the Examiner, Iverson teaches a network device comprising:

a first bucket configured to receive bandwidth at a first information rate, (e.g. col. 17, line 41 – col. 18, line 20, *"CIR"*);

a second bucket configured to receive bandwidth at a second information rate, (e.g. col. 17, line 41 – col. 18, line 20, *"bucket 402"*);

a third bucket configured to receive extra bandwidth from the second bucket, (e.g. col. 17, line 41 – col. 18, line 20, *"bucket 404", "BpEsum is the water level value in the second bucket 404 and represents the current accumulated value of unused bandwidth in excess of CIR+B_c (i.e. past overflows from the first bucket 402)."*); and

a scheduler configured to:

determine if a size of traffic received at the network device exceeds a bandwidth stored in the first bucket, (e.g. col. 17, line 41 – col. 18, line 20),

determine, when the size of the traffic does not exceed the bandwidth stored in the first bucket, if a size of the traffic exceeds a bandwidth stored in the second bucket, (e.g., col. 18, line 32 – col. 19, line 27), and

transfer, when the size of the traffic exceeds the number of tokens stored in the second bucket, and appropriate number of tokens from the third bucket to the second bucket so that the second bucket includes a number of tokens that equals or exceeds the size of the traffic, (e.g., col. 18, line 32 – col. 19, line 27). Iverson does not specifically teach the use of tokens. Ho teaches the use of tokens in buckets and refreshing said tokens, (e.g. col. 11, lines 30 – 44, *"token bucket"*). It would have been obvious to on of ordinary skill in the art at the time the invention was made to combine Ho with Iverson because of similar reasons stated above. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a plurality of guaranteed bandwidth buckets, (first, second, third bucket), since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.,* 193 USPQ 8.

As per claim 17, as closely interpreted by the Examiner, Iverson teaches

causing the traffic to be forwarded after the transfer, (e.g. col. 17, line 56 – col. 18, line 19); decrement the bandwidth in the first and second buckets based on the size of the traffic, (e.g., col. 18, line 32 – col. 19, line 27). Iverson does not specifically teach the use of tokens. Ho teaches the use of tokens in buckets and refreshing said tokens, (e.g. col. 11, lines 30 – 44, *"token bucket"*). It would have been obvious to on of ordinary skill in the art at the time the invention was made to combine Ho with Iverson because of similar reasons stated above.

As per claim 18, as closely interpreted by the Examiner, Iverson in combination with Ho teach all that is similar above in claims 1 – 3, 7 – 11 and 15 – 17 as applied to claim 17, furthermore, Iverson teaches determine if the third bucket includes the appropriate amount of bandwidth, and prohibit the traffic from being forwarded when the third bucket includes less than the appropriate amount of bandwidth, (e.g. col. 18, line 32 – 41). Ho teaches that the buckets contain tokens, (e.g. col. 11, lines 30 – 44). It would have been obvious to on of ordinary skill in the art at the time the invention was made to combine Ho with Iverson because of similar reasons stated above. Furthermore, it would be obvious to anyone skilled in the art that in transmitting information utilizing token buckets, that if a bucket is void of the required tokens, and there is no other backup source to receive more tokens than it is not possible to transmit a message because all resources are used up and the system would have to wait till the recourses were available to transmit said message.

As per claim 19, as closely interpreted by the Examiner, Iverson teaches one or more input ports configured to receive traffic from a network, each of the one or more input ports including the first bucket, the second bucket, the third bucket, (e.g., col. 2, lines 64 – 67 & col. 17, line 56 – col. 18, line 19), and Ho more specifically teaches the scheduler, (e.g. col. 12, lines 15 – 40).

Claims 13 and 20 – 22 are rejected for similar reasons as stated above.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iverson as applied to claim 1 above, and in view of Applicant's admitted prior art.

As per claim 4, as closely interpreted by the Examiner, Iverson does not specifically teach the guaranteed bandwidth buckets are credit/debit buckets. Applicant's admitted prior art suggests the use of credit/debit buckets being a modified type of token buckets, (e.g. page 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Applicant's admitted prior art with Iverson because using credit/debit buckets instead token buckets give the system more versatility that token buckets cannot perform, (i.e. credit/debit tokens bucket can be negative).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iverson and Ho as applied to claims 1 & 5 above, and in further view of Chiruvolu (6839321).

As per claim 12, as closely interpreted by the Examiner, Iverson and Ho do not specifically teach the traffic shaping policy screens based on the type of service requested.
Chiruvolu teaches the traffic shaping policy screens based on the type of service requested, (e.g. col. 6, lines 19 – 35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Chiruvolu with the combine system of Iverson and Ho because it would be more efficient for a system to give priority to users that has a higher type of service as indicated by their priority bit therefore, meeting the requirements of a guaranteed quality of service.

Response to Arguments

Applicant's arguments, see Appeal Brief, filed 10/24/2007, with respect to the rejection(s) of claim(s) 1, 5, 6 and 14 under 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Iverson and a 103(a).

The Examiner will supply the old response to the remarks since the basic arguments are still present.

If Applicant still feels that the prior art does not teach their claimed invention for the same reasons stated previously then it is advised to set up a Pre-Appeal Conference or send the case to The Board of Patent Appeals and Interferences.

In the Remarks, Applicant argues in substance that Iverson does not disclose or suggest providing a shared bandwidth bucket associated with a plurality of guaranteed bandwidth buckets.

As to the first Remark, Applicant is asked to look at the cited areas of Iverson and bandwidth buckets CIR, 402 and 404. Applicant's shared bandwidth bucket can be interpreted as bandwidth bucket 404. The "plurality of guaranteed bandwidth buckets" can be interpreted as CIR and bucket 402. It is also in the interpretations that a "plurality" is more that one, two or more, which is exactly what is taught by Iverson.

In the Remarks, Applicant argues in substance that Iverson does not disclose or even remotely suggest allocating bandwidth to the second bucket 404 based on the underutilization of bandwidth in CIR 400.

As to the second Remark, Applicant is asked to draw their attention to their own Remarks on page 14, paragraph starting with the word "Clearly". The Applicant cites Iverson, col. 17, lines 41 et seq., *"[a]t the end of every evaluation interval the Committed Information Rate (CIR) quantum is emptied into a the CSum bucket 402* ***and****/or the ESum bucket 404."* It is very clear that the CIR 400 can allocate bandwidth to bucket 402 and bucket 404.

Applicant also groups the other independent claims to these argument and therefore fall under the same interpretation, rejection and response that is disclosed above.

In the Remarks, Applicant argues in substance that Iverson et al. and Ho do not disclose or suggest this combination of features recited in claim 16, either alone or in any reasonable combination. For example, neither Iverson et al. or Ho disclose or suggest a first bucket configured to receive tokens at a first information rate; a second bucket configured to receive tokens at a second information rate; and a third bucket configured to receive extra tokens from the second bucket. Iverson et al. and Ho, whether taken alone or in may reasonable combination, do not disclose these features. As described above in relation to claim 1, the Examiner alleges that CIR 400 equates to the claimed first bucket, first bucket 402 equates to the claimed second bucket, and second bucket 404 equates to the claimed third bucket (Office Action - pg. 8). Such an allegation is not supported in the disclosure of Iverson et al. Rather, Iverson's CIR IS the information rate at which bits are assigned to the first bucket 402. The CIR is not a bucket that is

assigned bandwidth at a first information rate. The second bucket 404 of Iverson et al. is then assigned bandwidth left over from that assigned to bucket 402 at the CIR. Clearly, Iverson et al. discloses only a single bucket (i.e., bucket 402) that receives bandwidth at a first information rate (CIR) and a shared bucket (i.e., bucket 404) that receives extra bandwidth from the first bucket. Iverson et al. does not disclose or even remotely suggest a second bucket that receives bandwidth at a second information rate and a third bucket that receives extra bandwidth from the second bucket.

As to the third Remark, it appears that the term "bucket" is being taken too literal in the interpretation of the claim language and the prior art by the Applicant. A "bucket" can be space in memory that is allocated to transferring information to another device or internal part of a device, therefore a "bucket" is nothing more than memory or sections of memory. In Iverson, it is stated that the CIR only allocates memory or "water" to "buckets" 402 and 404 if during transmission, the amount that the CIR would is not used up in its attempt to transmit a piece of information. Therefore the initial amount of memory or "bucket" is the CIR and what is not used in an interval is allocated to bucket 402 and/or 404 as explained above in the previous responses. To further prove this point an example that is taken from Iverson,

"At the end of every evaluation interval the Committed Information Rate (CIR) quantum is emptied into a the CSum bucket 402 and/or the ESum bucket 404. The committed burst bandwidth credit (B_c) dimension of the first bucket 402 represents the amount of bandwidth that a User may transmit in a burst, potentially above the CIR, and expect reliable delivery to the network. The water level of the first bucket (BpCSum) represents the amount of bandwidth accumulated by the user above the CIR rate up to the maximum provisioned for the user (B_c).

Thus, if the BpCSum is stable from interval to interval, the User is requesting traffic delivery at their CIR. If the BpCSum rises from interval to interval, the User is requesting traffic at a rate below their CIR and if it is falling, the User is requesting traffic at a rate above their CIR. If the BpCSum is positive, the port was requesting bandwidth at a rate below the CIR+B_c for at least the last measurement interval. If the BpCSum is zero, port bandwidth requests have been substantially equal to the CIR+ B_c for the port. If the water level in CSum is negative (below the midpoint), the rate that the port has been using bandwidth is above CIR+ B_c. If the port has accumulated any excess bandwidth credit by transmitting below CIR for some amount of time, this bandwidth credit will be used if he water level in the first bucket goes below zero."

Thus with the above understanding of what a "bucket" truly is, Memory, it is then understood that the CIR is memory that is utilized first when transmitting information if less is needed, then the non-used memory is allocated to a reserve for more bandwidth intensive information. The first underlined cited area of Iverson would make one understand that if the BpCSum is stable, the user is utilizing their memory at its normal rate. Which would mean that what ever is allocated at the time of transmission, the memory is all used up. This is further proven by Iverson in the summary of their invention, col. 2, lines 20 et seq., *"Users are guaranteed a minimum traffic rate or Committed Information Rate (CIR) and are allowed to temporarily send a burst of traffic or a committed burst (B_c)"* This would mean that the committed burst rate is the memory that is initially utilized from the CIR to transfer information.

All other arguments to dependent claims that Applicant makes fall under the same arguments to the independent claims and are therefore still rejected under the same interpretation and reasoning as stated above.

(10) Response to Argument

In the arguments, Appellant argues in substance that Iverson does not disclose providing a shared bandwidth bucket associated with each of a plurality of guaranteed bandwidth buckets. Applicant further states that the Examiner acknowledges that Iverson does not explicitly teach a plurality of guaranteed bandwidth buckets but instead states that this is mere duplication of essential working parts of a device which involves only routine skill in the art, (citing *St. Regis Paper Co. v. Bemis Co.,* 193 USPQ 8.). More particularly, the Examiner does not compare the facts in *St. Regis" Paper Co.* with those in the present case and explain why, based upon this comparison, the legal conclusion in the present case should be the same as that in *St. Regis" Paper Co.* Instead, the Examiner relies upon *St. Regis" Paper Co.* as allegedly establishing a per se rule that duplication of parts involves only routine skill in the art. As stated by the Federal Circuit in *In re Ochiai,* "reliance on per se rules of obviousness is legally incorrect and must cease." Unlike the Court in *St. Regis Paper Co.,* the Examiner in the present application has made no such factual determination and has not provided any support in the prior art for the allegation that one of ordinary skill in the art at the time the invention was made would have been sufficiently motivated to modify the teachings of IVERSON et al. to include providing a shared bandwidth bucket associated with each of a plurality of the guaranteed bandwidth buckets, as recited in claim 1.

As to this argument, the Examiner will describe the rational and usage of the court case along with other court cases that further support the obviousness of adding another bandwidth bucket. The prior art of Iverson clearly teaches a bandwidth bucket that is filled with "water", i.e., allocated bandwidth that is at a predetermined rate called CIR, see Figure 10 and column 17, lines 24 et seq. When a user utilizes this bandwidth at the same rate as CIR, the level in the bucket stays the same. When the user underutilizes the bandwidth allocated to them in the first bucket 402, it begins to fill up and if this trend continues the first bucket 402 "spills" over into a second bandwidth bucket 404 with the unused allocated bandwidth. Furthermore, the CIR can "empty" the bandwidth into one or the other or Both, e.g., col. 17, lines 41 - 50. If a user has a burst of information that requires more bandwidth to use then the second bandwidth bucket and the first bandwidth bucket is used to accommodate the large amount of bandwidth that would be needed to send the information, as is clearly seen in figure 10 element 406 and 408, column 19, line 12 – 26 et. seq., *"Decision step 416 ... Since BpCSup was Zero or negative, Step 420 uses up excess bandwidth credit stored in the second bucket by decrementing the accumulated excess bandwidth count..."*. The first bucket 402 can be considered the Appellant's "shared bandwidth bucket" and the second bucket 404 can be considered the Appellant's "guaranteed bandwidth bucket". Examiner agrees that there is no "plurality of guaranteed bandwidth buckets", hence the rejection under 103. The Examiner is stating that it could be obvious to one of ordinary skill in the art at the time the invention was made to add another bandwidth bucket that is the same as the second bandwidth bucket 404, therefore making a "plurality of guaranteed bandwidth buckets". The Examiner utilizes the rational of mere duplication that is stated in MPEP 2144.04 VI. B. Duplication of Parts. The case law utilized in this section is *In re Harza*, 274 F.2d 669,

124 USPQ 378 (CCPA 1960), which is different from what was relied upon previously. Regardless, the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. The only result of having more than one "guaranteed bandwidth bucket, would be to have more bandwidth reserved for the user in case of large bandwidth demands. This would be along the same lines as making Iverson's second bandwidth bucket 404 the size of two or more "regular" sized bandwidth buckets so it may accommodate a transmission that the first cannot handle.

In the arguments, Appellant argues in substance that Iverson and Ho do not teach a first bucket receiving tokens or bandwidth at a first information rate and the second bucket that receives tokens or bandwidth at a second information rate, as recited in claim 16.

As to this argument, it is clear that both buckets receive bandwidth at a rate. In Iverson, the first bandwidth bucket receives bandwidth at a rate CIR, which the Appellant points out in previous remarks made. The second bandwidth bucket receives bandwidth that is the overflow from the first bucket, this could be at a rate of CIR if the first bucket is full and nothing is transmitted at that time or CIR minus the amount used by the user that is overflowed from a full first bucket or 0 if the CIR is utilized in a full first bucket or if the first bucket is not full. Therefore it is clear that both buckets have a type of rate at which bandwidth is filled. This could further be utilized in the duplication of Iverson's second bandwidth bucket, i.e., the first bandwidth bucket is full and overflows to the second bandwidth bucket, which could also be full which then overflows to

another bucket that is the same as second bucket 404. In this scenario and interpretation the duplicate bucket 404 would have a rate of CIR.

All other arguments are similar in nature to what is argued above and therefore is answered in a similar manner as what the Examiner as stated above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/D. E. E./

Examiner, Art Unit 2143

/Nathan J. Flynn/

Supervisory Patent Examiner, Art Unit 2143

Conferees

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/John Follansbee/

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